

Exhibit 24

(Part 1)

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN

Toby Schechner, Barbara Barnes,
Laura Bliss, Kathleen Jordan, Kathryn
Limpede, Louise Miljenovic, Candace
Oliarny, Beverly Simmons, Richard
Thome and Mary Ellen Thome,
individually and on behalf of all others
similarly situated,

Plaintiffs,

v.

Whirlpool Corporation,

Defendants.

Case No. 2:16-cv-12409-SJM-RSW

DECLARATION OF KEITH R. UGONE, PH.D.

April 9, 2018

DECLARATION OF KEITH R. UGONE, PH.D.

April 9, 2018

I.	OVERVIEW OF ASSIGNMENT	1
II.	EXECUTIVE SUMMARY	3
III.	SUMMARY OF OPINIONS.....	6
	A. Mr. Weir’s Percentage Price Premium Approach Assesses Claimed Damages On Oven Attributes Unrelated To AquaLift.....	6
	B. Economic Evaluation Of Mr. Weir’s Regression Analysis	8
	C. Economic Evaluation Of Mr. Weir’s Conjoint Analysis.....	11
	D. Determination Of Claimed Economic Injury And Damages As A Result Of AquaLift Requires Individualized Inquiry.....	16
IV.	QUALIFICATIONS AND EXPERIENCE	19
V.	FACTS, DATA, AND INFORMATION RECEIVED.....	20
VI.	OVERVIEW OF PARTIES.....	21
	A. Whirlpool Corporation.....	21
	B. Named Plaintiffs	22
VII.	BACKGROUND INFORMATION REGARDING CLEANING FEATURES.....	23
	A. Pyrolytic Self-Clean.....	23
	B. Steam Clean	25
	C. Low-Heat Self-Clean	27
VIII.	SUMMARY OF THE WEIR DECLARATION	28
	A. Hedonic Regression	28
	1. Description Of Data	28
	2. Description Of Hedonic Regression And Results.....	31
	B. Conjoint Analysis.....	33
	C. Calculation Of Claimed Price Premium Damages.....	35
IX.	MR. WEIR’S PERCENTAGE PRICE PREMIUM APPROACH ASSESSES CLAIMED DAMAGES ON ATTRIBUTES UNRELATED TO AQUALIFT	36
	A. Preliminary Observations Of Price Variation Across Challenged Product Sales.....	38
	B. Price Variation Across Numerous Dimensions Demonstrate That A Single Claimed Percentage Price Premium Would Not Apply To All Challenged Product Sales.....	43
	1. Confounded Price Differences Across Brands With Claimed AquaLift Price Premium.....	44
	2. Confounded Price Differences Due To Non-Challenged Attributes With Claimed AquaLift Price Premium	47
	3. Confounded Price Differences Due To Promotional Status And Additional Discounts With Claimed AquaLift Price Premium	49

4. Confounded Price Differences Across States With Claimed AquaLift Price Premium.....	53
X. ECONOMIC EVALUATION OF MR. WEIR'S PRELIMINARY REGRESSION ANALYSIS	55
A. Mr. Weir's Regression Analysis Inappropriately Compares AquaLift To Manual Clean	55
B. Mr. Weir's Regression Analysis Fails To Isolate Cleaning Benefits From Non-Cleaning Attributes Of AquaLift For Which Plaintiffs Are Not Claiming Damages.....	58
C. Mr. Weir's Regression Analysis Failed To Account For Relevant Quantifiable And Non-Quantifiable Attributes That Impact Prices	61
1. Mr. Weir Omitted Numerous Quantifiable Attributes In His Regression Analysis.....	62
2. Mr. Weir Is Unable To Control For Various Non-Quantifiable Attributes In His Regression Analysis	67
D. Mr. Weir's Regression Yields Unreasonable Results.....	68
1. Mr. Weir's Regression Yielded Coefficients That Are Counterintuitive	69
2. Mr. Weir's Regression Results Unreasonably Imply That Challenged Products With The Same Capacity Would Have Different Claimed Price Premiums	70
E. Mr. Weir Does Not Test Whether His Regression Results Are Applicable To Other Retail Sales Data Or Other Geographic Areas.....	72
F. The Data Underlying Mr. Weir's Regression Analysis Included Various Anomalies	75
XI. ECONOMIC EVALUATION OF MR. WEIR'S CONJOINT ANALYSIS	78
A. Mr. Weir's Descriptions Of Cleaning Features Are Incomplete And Inaccurate.....	79
1. Cleaning Feature Descriptions Omit Relevant Advantages And Disadvantages	80
2. Labels And Descriptions For AquaLift Self-Clean And AquaLift Partial-Clean Likely Alter Survey Responses	81
B. Mr. Weir's Conjoint Survey Omits Attributes And Attribute Levels That Would Have Been Relevant To Consumers Purchasing Ovens	83
C. Mr. Weir's Conjoint Survey Does Not Meet His Own Objectivity Criteria	86
D. The Choice Sets Presented To Survey Participants Do Not Represent Realistic Product Choices Available In The Market.....	90
1. Prices Presented In Choice Sets Are Not Consistent With Real World Prices.....	90
2. Unrealistic Choice Sets May Yield Unreliable Survey Results.....	93
E. The Assumptions Survey Participants Were Asked To Make Regarding The Choice Sets Can Yield Unreliable Results.....	96
1. Underlying Assumptions Regarding Features Are Likely To Vary Across Participants.....	97

2. Mr. Weir’s “Features” Attribute Contradicts The Instruction Prompts And Can Cause Confusion For Survey Participants	98
F. Mr. Weir’s Conjoint Survey Does Not Provide A Value Tied To The Putative Class Period	99
G. Mr. Weir’s Market Simulations Are Unreliable for Evaluating The Claimed Price Premium	102
1. Mr. Weir’s Market Simulations Do Not Reflect The Market Simulation Procedure As Described by Sawtooth Software	103
2. Mr. Weir’s Discussion Of Supply-Side Factors Is Incomplete.....	106
3. Mr. Weir’s Market Simulations Do Not Provide A Price Premium	110
XII. MR. WEIR’S PROPOSED CLAIMED DAMAGES CALCULATIONS UTILIZE AN UNRELIABLE AND OVERSTATED CLAIMED DAMAGES BASE.....	113
XIII. DETERMINATION OF CLAIMED ECONOMIC INJURY AND DAMAGES AS A RESULT OF THE ALLEGED WRONGFUL CONDUCT REQUIRES INDIVIDUALIZED INQUIRY	114
A. Individual Inquiry Is Required To Identify Putative Class Members Who Purchased The Challenged Products For Reasons Unrelated To AquaLift	115
1. Whirlpool’s Documents Indicate That Numerous Purchase Drivers Other Than AquaLift Drive Sales Of The Challenged Products	116
2. Named Plaintiffs’ Deposition Testimony Is Supportive Of Numerous Purchase Drivers Other Than AquaLift	118
B. Individual Inquiry Is Required To Determine Putative Class Members’ Knowledge And Perception Of AquaLift When Purchasing The Challenged Products	121
1. Putative Class Members Who Reviewed Publicly-Available Information Regarding AquaLift Would Have Been Aware Of The Required Cleaning Steps For Ovens With AquaLift	122
2. Putative Class Members Who Read Online Reviews/Consumer Reports Or Spoke To Owners Of Ovens With AquaLift About AquaLift Would Have Been Aware Of How AquaLift Functions	125
3. Putative Class Members Who Spoke With Sales Representatives Likely Would Have Varying Expectations Regarding AquaLift	126
4. Putative Class Members Who Had Experience With Or Knowledge About Self-Cleaning Technology Would Have Varying Expectations And Perceptions Regarding AquaLift.....	127
C. Individual Inquiry Is Required To Identify Putative Class Members Who Were Satisfied With AquaLift.....	133
D. Individual Inquiry Is Required To Determine The Specific Prices Paid For The Challenged Products By Each Putative Class Member	136

DECLARATION OF KEITH R. UGONE, PH.D.

April 9, 2018

I, Keith R. Ugone, hereby declare:

I. OVERVIEW OF ASSIGNMENT

1. I am an economist and have been retained by counsel for Whirlpool Corporation (“Whirlpool” or “Defendant”) to offer my opinions regarding whether claimed Class-wide damages can be reliably evaluated using common proof in the matter of *Schechner et al. v. Whirlpool Corporation*. I understand Ms. Toby Schechner (“Ms. Schechner”), et al. (collectively, “Named Plaintiffs” or “Plaintiffs”)¹ allege that Whirlpool has engaged in false and misleading advertising relating to Whirlpool’s AquaLift Self-Cleaning Technology (“AquaLift” or the “Challenged Feature”).² AquaLift is an oven cleaning feature included on various oven models sold under the following Whirlpool-manufactured brands at issue in this case: Whirlpool, Maytag, KitchenAid, and Jenn-Air (collectively, the “Challenged Products”).³
2. Named Plaintiffs allege “Whirlpool’s marketing and advertising for its ovens containing AquaLift ... is false, deceptive, and misleading to reasonable consumers because AquaLift – a key product feature – does not perform as advertised.”⁴ Generally, Named Plaintiffs assert that “[c]ontrary to Whirlpool’s representations in its advertising and marketing, AquaLift does not ‘self-clean’ the Ovens or otherwise perform as advertised to consumers.”⁵

¹ The full list of the Named Plaintiffs is provided in **Section VI** of my declaration.

² First Amended Class Action Complaint (“First Amended Complaint”), p. 1.

³ First Amended Complaint, p. 12.

⁴ First Amended Complaint, p. 1.

⁵ First Amended Complaint, p. 2. (Bracketed text added for clarification.)

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

3. Named Plaintiffs claim that they (and putative Class members) “would not have purchased the [Challenged Products] – certainly not at the prices they paid – were it not for Whirlpool’s false, deceptive, and misleading advertising and/or Whirlpool’s failure to disclose the material fact that its AquaLift technology is defective and incapable of performing according to Whirlpool’s advertising, marketing, and express and implied warranties.”⁶ It is my understanding that Plaintiffs seek to certify a class of “all persons who purchased a Whirlpool, Maytag, KitchenAid, or Jenn-Air oven equipped with AquaLift in [Michigan, Florida, New Jersey, Arizona, Idaho, or New Mexico].”⁷
4. Plaintiffs submitted the declaration of Mr. Colin B. Weir on February 12, 2018 (the “Weir Declaration”) in support of class certification in this matter. In his declaration, Mr. Weir claimed that “it is possible to determine class-wide damages in this case.”⁸ Mr. Weir asserted that the “correct measure of damages in this situation is price premium damages, wherein consumers would receive the difference in value between what they were promised (a self-cleaning oven) and what they received (an oven with little to no self-cleaning ability).”⁹ Mr. Weir calculated a claimed price premium factor of (a) 10.58% through a conjoint analysis by comparing AquaLift with what he termed “AquaLift partial-clean” and (b) 10.83% through a hedonic regression approach by comparing the pricing data associated with ovens having the AquaLift feature to ovens with no cleaning feature (i.e., manual clean only).¹⁰

⁶ First Amended Complaint, p. 5. (Bracketed text added for clarification.)

⁷ Plaintiffs’ Memorandum of Law in Support of Motion for Class Certification and for Appointment of Class Representatives and Class Counsel (“Plaintiffs’ Motion for Class Certification”), p. 26. (Bracketed text included in original.)

⁸ Declaration of Colin B. Weir dated February 12, 2018 (“Weir Declaration”), p. 5.

⁹ Weir Declaration, p. 3.

¹⁰ Weir Declaration, p. 41.

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

5. I have been requested by counsel for Whirlpool to independently evaluate from an economic and damages quantification perspective:
- a. the opinions contained in the Weir Declaration (i.e., whether Mr. Weir's proposed price premium methodology for evaluating Class-wide damages using common proof yields reliable results); and
 - b. whether standard economic analysis can be used to quantify claimed price premium damages on a Class-wide basis using common proof.

II. EXECUTIVE SUMMARY

6. Based upon a detailed analysis of the information available in this matter, I have concluded that (a) the methodologies proposed by Mr. Weir will not evaluate reliably Class-wide damages using common proof and (b) given the facts and circumstances of this case, individualized inquiry is required to evaluate claimed damages. I provide an Executive Summary of certain observations and opinions here. (A larger summary of my observations and opinions, as well as the detail to my observations and opinions, is provided later in my report.)

- a. Mr. Weir's Proposed Methodologies Do Not Yield A Reliable Measure Of Class-Wide Claimed Damages. Mr. Weir's proposed approaches fail to provide a reliable common proof measure of Class-wide claimed damages for at least the following reasons.
 - i. Problems Common To Both Approaches Proposed By Mr. Weir (I.e., Conjoint Analysis And Hedonic Regression Analysis).
 - Problem: Constant Percentage Applied To Market Transaction Price. The "constant percentage" approach proposed by Mr. Weir (based upon his conjoint analysis and his hedonic regression analysis) results in a claimed damages percentage being applied to oven prices. However, the Challenged Products exhibit significant variation in purchase prices, ranging from \$100 to \$3,500 because the ovens different attributes unrelated to AquaLift. Under Mr. Weir's approach, one sale would contribute approximately \$10 to Class-wide claimed damages but another would contribute approximately \$350. This difference is due to factors unrelated to the alleged misrepresentations (including oven size, number of burners, fuel source, finish, brand, etc.). Consequently, Mr. Weir's claimed damages approach extracts value from attributes that contribute to oven prices unrelated to AquaLift.
 - Problem: Analyses Fail To Account For Numerous Oven Attributes. Both of Mr. Weir's proposed methods attempt to parse the prices of the Challenged Products across only a subset of the attributes relevant to the pricing and purchasing of ovens. (For

Declaration of Keith R. Ugone, Ph.D.
 April 9, 2018

example, Mr. Weir's hedonic regression analysis does not include as explanatory variables such attributes as type of oven drawer (e.g., broiler drawer or a warmer) or the cooktop surface and burner elements (e.g., chrome bowls vs. smooth cooktop). By allocating the prices among only some (but not all) relevant attributes in his two proposed analyses, Mr. Weir attributes too much of the oven prices to the included attributes (e.g., the AquaLift feature).

ii. Problems Specific To Mr. Weir's Hedonic Regression (Among Other Errors).

- Problem: Mr. Weir's Regression Measures The Wrong Change In Price. Mr. Weir's proposed hedonic regression approach evaluates the price difference between an oven with AquaLift and an oven with no cleaning feature (i.e., manual clean only). However, even Plaintiffs concede that ovens with AquaLift possess self-cleaning capabilities. In addition (notably), the comparison performed in Mr. Weir's regression is contrary even to the (still flawed) comparison performed in his conjoint analysis between AquaLift and what he termed AquaLift partial-clean. Consequently, Mr. Weir's regression yields a percentage price premium that is too large and does not have a nexus to Plaintiffs' theory.
- Problem: Mr. Weir's Regression Does Not Isolate The AquaLift Component Of Price Related To Cleaning. Plaintiffs' theory of liability relates to the alleged misrepresentations associated with the cleaning attributes of AquaLift.¹¹ Mr. Weir's regression analysis failed to separate the non-cleaning-related attributes associated with AquaLift that add value to the Challenged Products. Because the non-cleaning-related attributes are not controlled for, the claimed price premium Mr. Weir attempts to measure through the use of his proposed hedonic regression is overstated. This is because Mr. Weir's regression attempts to measure the oven price difference between AquaLift (which includes both cleaning-related attributes and non-cleaning-related attributes) and manual cleaning. The impact of any alleged misrepresentation associated with the cleaning-related benefits is not isolated.¹²
- Problem: Limited Nature Of Underlying Data Utilized In Regression. Mr. Weir's regression utilized sales data from only one retailer, H.H. Gregg. H.H. Gregg accounts for only **Re** of wholesale units sold and does not include any sales from four of the six Class states. Mr. Weir's regression results cannot be automatically extrapolated to

¹¹ It is my understanding that the Named Plaintiffs assert that Whirlpool misrepresented AquaLift as a "self-clean" feature requiring minimal (to no) manual effort, when (allegedly) AquaLift fails to fully clean the interior of the oven (requiring more manual cleaning than expected).

¹² A 2011 Whirlpool presentation indicates that the AquaLift technology allows for (a) larger oven capacities, (b) smooth interior of oven doors, and (c) larger oven windows. "Vesta Purchase Influencers," dated May 2011. (WSC0026642 – 687, at 643.) In addition, ovens with AquaLift require less insulation and ventilation, allowing for improvements in functionality and aesthetics. Ms. Klyn testified that the lower temperatures of AquaLift allowed for a smaller ventilation surface than what would be included with an oven equipped with pyrolytic self-clean. (Klyn Deposition, p. 355.)

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

all purchases by putative Class members (i.e., across all retailers and across all six Class states).¹³

iii. Problems Specific To Mr. Weir's Conjoint Analysis (Among Other Errors).

- Problem: Unrealistic Choices Provided To Conjoint Survey Participants. In his conjoint survey, Mr. Weir provides certain choice sets and prices to survey participants that do not bear any resemblance to market realities (e.g., offering Jenn-Air ovens at prices well below actual market prices). The choice set price points Mr. Weir presented to survey participants ranged from \$600 to \$1,200 whereas approximately 98.7% of total Jenn-Air ranges were sold at H.H. Gregg at a price higher than \$1,200 (i.e., the highest price of Jenn-Air oven choices in Mr. Weir's conjoint survey).
 - Problem: No Empirical Support For Assumption That Tastes And Preferences Have Not Changed Over The Putative Class Period. Mr. Weir stated that during his pretest interviews, he inquired about whether the participants believed that "their feelings about AquaLift ovens would be different: over the last 5 years; across types or finishes of ovens; or across price points."¹⁴ Based upon eight interviews, Mr. Weir assumed there have not been any changes in the underlying value of attributes or tastes and preferences regarding oven purchases over the entire Class period. However, analysis of the H.H. Gregg sales data used in Mr. Weir's hedonic regression analysis shows that consumer preferences for the attributes studied in his conjoint survey have varied over the putative Class period. For example, an analysis of sales trends of different oven finishes shows that unit sales of white, black, and slate finish ovens as a percentage of total oven sales have declined from 2012 to 2016, while unit sales of stainless steel and black stainless steel finish ovens as a percentage of total oven sales have increased during this time period. Based upon actual sales data, Mr. Weir's assumption about constant consumer preferences during the putative Class period is invalid.
 - Problem: Unreliable Market Simulations. Mr. Weir's approach to calculating a claimed damages measure from the survey responses (i.e., his market simulations) did not include competitor products and hence is contrary to economic realities and to the procedure described by the very software provider that he used.
- b. Individualized Inquiry Is Required. Differences across putative Class members' purchases, use, and satisfaction demonstrate that the "one-size-fits-all" (i.e., common proof) approach proposed by Mr. Weir cannot be used to reliably calculate claimed damages. Mr. Weir's proposed methodologies would include putative Class members that did not suffer injury and

¹³ The H.H. Gregg sales data contain sales in only two out of the six states for which Plaintiffs are seeking Class certification (i.e., Florida and New Jersey). Mr. Weir provides no support that his regression results, which are based primarily upon sales in 18 states that are not included in the proposed Class, are applicable to the claimed Challenged Product sales in the at-issue states. In addition, as prices for a given model of the Challenged Products vary across retailers and for reasons unrelated to AquaLift, Mr. Weir has not established that his regression results based upon H.H. Gregg sales data apply to all Challenged Product sales across all other retailers. For example, factors such as a retailer's own brand (e.g., Sears's Kenmore products), propensity to provide discounts, and customer service may influence pricing.

¹⁴ Weir Declaration, p. 20.

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

would result in an overstatement of claimed damages for a significant number of putative Class members if injury is found to exist.

- i. Reasons For Purchase And Satisfaction With The Challenged Product. Many consumers' purchase experiences and likely use patterns have no nexus to the claimed harm. For example, for many purchasers, AquaLift did not influence their purchase decision (i.e., there are many different reasons why a particular oven is purchased). In addition, many owners are satisfied with their purchase and the value they received.
- ii. Consumer Research. Given the cost of purchasing an oven, it is likely a significant number of putative Class members conducted research prior to purchasing a Challenged Product. It also is likely some putative Class members had knowledge of how AquaLift functions and still purchased, demonstrating that they received the value for which they paid.
 - Whirlpool instructions, including those available on the Whirlpool website (e.g., AquaLift FAQ page), in the Use Care guide, in the Quick Reference Guide, and as labels attached to the oven, disclose the steps required to clean the oven with AquaLift.
 - In addition, putative Class members who discussed the Challenged Products with informed sales representatives likely would have been aware of how AquaLift functions.
- iii. Variation In Purchase Prices. The significant variation in purchase prices demonstrates that a "one-size-fits-all" approach would not measure the claimed economic harm suffered by putative Class members with a nexus to Plaintiffs' theory of liability.

III. SUMMARY OF OPINIONS¹⁵

7. The observations and opinions I present in this declaration are based upon (a) my economics and damage quantification training and experience, (b) documentary evidence, (c) deposition testimony, and (d) my review of the Weir Declaration, *inter alia*. A detailed summary of my evaluation of the Weir Declaration is provided below.

A. Mr. Weir's Percentage Price Premium Approach Assesses Claimed Damages On Oven Attributes Unrelated To AquaLift

8. Mr. Weir proposed to calculate claimed price premium damages by applying a constant percentage price premium to all Challenged Product sales. Mr. Weir did not discuss, acknowledge, or

¹⁵ This Summary of Opinions is intended to be an overview and does not contain all of my observations regarding the claimed damages methodologies proposed by Mr. Weir. A full description of my opinions is contained throughout my declaration (i.e., narrative and associated exhibits).

Declaration of Keith R. Ugone, Ph.D.
 April 9, 2018

investigate the implications of applying a single percentage price premium to all putative Class member purchases across (a) brands, (b) models, (c) promotional status, and (d) different geographies (i.e., states). Due to price variation across these and other dimensions unrelated to the alleged wrongful conduct, Mr. Weir's approach would result in windfall gains to putative Class members (e.g., Class members who purchased the Challenged Products at a significant discount or Class members who purchased Challenged Products with more highly valued features). Mr. Weir did not analyze any of the relevant price variations summarized below when concluding it would be appropriate or reliable to extrapolate the results of his conjoint analysis or preliminary regression analysis to the entire putative Class (i.e., using a common proof approach).

- a. Preliminary Observations Of Price Variation Across Challenged Product Sales. The H.H. Gregg retail sales data (used by Mr. Weir in his preliminary regression) reveal the existence of substantial price variation across the sales of the Challenged Products. For example,
 - i. retail prices of the Challenged Products at H.H. Gregg ranged from under \$100 to almost \$3,500;
 - ii. retail prices of the Challenged Products vary significantly across brands (e.g., Jenn-Air ovens generally are substantially more expensive than Whirlpool, KitchenAid, and Maytag ovens);
 - iii. retail prices of the Challenged Products vary significantly across models within a single brand (e.g., Whirlpool slide-in ovens generally are more expensive than Whirlpool freestanding ranges); and
 - iv. retail prices of the Challenged Products vary significantly across purchases of the same single oven model.¹⁶ (**Section IX.A.**)
- b. Price Variation Across Numerous Dimensions Demonstrates That A Single Claimed Percentage Price Premium Would Not Apply To All Challenged Product Sales. Prices of the Challenged Products vary across numerous dimensions and attributes that are unrelated to AquaLift. For example, ovens with a stainless steel finish are more expensive than the same model oven with a white finish. Because of this variation, Mr. Weir's use of a single claimed percentage price premium applicable to all purchases of the Challenged Products inappropriately would claim as damages some portion of the value generated by these

¹⁶ There are significant price variations both within specific time periods (e.g., within a single month) and across different time periods (e.g., across months, with prices tending to fall over time for specific models).

Declaration of Keith R. Ugone, Ph.D.
 April 9, 2018

unrelated attributes or dimensions. In the aforementioned example, for otherwise identical ovens with AquaLift that differ solely based upon the color of the finish (and thus whose prices differ solely based upon that color), Mr. Weir's claimed damages approach would attribute some portion of the price difference between these ovens to AquaLift. However, there is no a priori reason to believe any of these types of price differences (summarized below) would be attributable to the alleged misrepresentation as opposed to unrelated considerations. (**Section IX.B.**)

- i. Confounding Price Differences Across Brands With AquaLift Price Premium. Transaction prices of the Challenged Products in the H.H. Gregg sales data varied across the four Whirlpool brands under which the Challenged Products are sold: Whirlpool, Maytag, KitchenAid, and Jenn-Air. Because Mr. Weir relies upon a percentage price premium approach, he inappropriately would allocate to the alleged wrongful conduct some portion of the brand value associated with the Challenged Products. (**Section IX.B.1.**)
- ii. Confounding Price Differences Due To Non-Challenged Attributes With AquaLift Price Premium. Transaction prices of the Challenged Products in the H.H. Gregg sales data vary due to differences in non-challenged attributes (e.g., finish, convection functions, number of oven racks, number of burners, gas versus electric, etc.). Because Mr. Weir relies upon a percentage price premium approach, he inappropriately would allocate to the alleged wrongful conduct some portion of the value attributable to such non-challenged attributes. (**Section IX.B.2.**)
- iii. Confounding Price Differences Due To Promotional Status And Additional Discounts With AquaLift Price Premium. Transaction prices of the Challenged Products in the H.H. Gregg sales data varied significantly depending upon whether or not (1) the purchase was made during an active promotion and/or (2) the buyer was able to secure additional discounts on the "sticker price" (i.e., the price offered). Mr. Weir has provided no justification or analysis that a Challenged Product sold with considerable discounts contains the same proportional price premium as a Challenged Product being sold at the sticker price (promoted or not). Many ovens were sold at extremely low prices, perhaps indicating a floor model, a dented model, or a discontinued model. (**Section IX.B.3.**)

9. Additional problems associated with Mr. Weir's percentage price premium approach are provided later in this declaration.

B. Economic Evaluation Of Mr. Weir's Regression Analysis

10. Mr. Weir's proposed regression analysis is flawed, unreliable, and incapable of demonstrating or quantifying claimed economic harm on a Class-wide basis. In addition, Mr. Weir's proposed regression analysis does not have a nexus to Plaintiffs' theory of liability.

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

- a. Mr. Weir's Regression Analysis Inappropriately Compares AquaLift To Manual Clean. Using regression analysis, Mr. Weir calculated a claimed price premium for ovens with AquaLift technology relative to ovens requiring manual cleaning (i.e., an oven with no cleaning mechanism of any type). However, Mr. Weir's proposed comparison between AquaLift and manual clean does not properly account for the value actually received by consumers and is unreliable for damages evaluation purposes in this matter. **(Section X.A.)**
 - i. Mr. Weir's regression comparison is contrary to the comparison Mr. Weir performed in his conjoint survey. The comparison in Mr. Weir's conjoint analysis was between AquaLift and what he termed AquaLift partial-clean (which acknowledged that consumers would have received some value from AquaLift).
 - ii. Mr. Weir's regression comparison is contrary to Plaintiffs' Motion for Class Certification in which Plaintiffs focus on their assertion that AquaLift "cannot clean the sides, walls, door, or top of the oven cavity" while acknowledging that AquaLift provides cleanability benefits to the bottom of the oven cavity.
 - iii. Mr. Weir's regression comparison is contrary to the testimony of Named Plaintiffs, who acknowledged that AquaLift provided some benefits over a manual clean oven. For example, Mr. Richard Thome testified that AquaLift provided at least 50% cleaning enhancement.¹⁷
 - iv. Mr. Weir's regression comparison fails to account for significant cleaning benefits consumers received that are not directly related to cleaning proficiency, such as the avoidance of high heat, the short cleaning cycle, and the avoidance of odors and fumes.
- b. Mr. Weir's Regression Analysis Fails To Isolate The Percentage Of Price Associated With AquaLift. Mr. Weir calculated a claimed percentage price premium for ovens with AquaLift relative to "a comparable oven with no cleaning mechanism."¹⁸ However, ovens with AquaLift offer significant non-cleaning benefits relative to ovens with no cleaning mechanism that Mr. Weir claims are "comparable." These non-cleaning benefits include improved aesthetic appeal, improved cooktop performance, and a larger oven door window, among others. These attributes are not isolated from the claimed percentage of price associated with AquaLift for which Plaintiffs complain. **(Section X.B.)**
- c. Mr. Weir's Regression Analysis Fails To Account For Additional Attributes That Impact Prices. Mr. Weir's regression analysis failed to isolate the impact on price of various objective and subjective oven attributes. Mr. Weir's regression likely yielded unreliable results due to these omissions, such that the claimed percentage price premium calculated from his regression would inappropriately incorporate the effects of such omitted attributes. **(Section X.C.)**

¹⁷ Deposition of Richard Thome taken November 2, 2017 ("Richard Thome Deposition"), pp. 90 – 91.

¹⁸ Weir Declaration, p. 39.

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

- i. Objective Attributes. Mr. Weir's regression analysis omitted relevant and quantifiable features such as the type of oven drawer (e.g., whether it is a broiler drawer or a warmer), the cooktop surface and burner elements (e.g., chrome bowls vs. smooth cooktop), and additional cooking features (e.g., Frozen Bake™ technology), among others. (Section X.C.1.)
- ii. Subjective Attributes. Mr. Weir's regression analysis does not account for certain subjective attributes such as the aesthetic appeal of an oven or its ease of use. (Section X.C.2.)
- d. Mr. Weir's Regression Yields Unreasonable Results. The regression that Mr. Weir performed resulted in coefficients and damages implications that are unreasonable in light of economic theory and the nature of the relevant attributes. Such unreasonable results further demonstrate that Mr. Weir's regression model is fundamentally flawed, unreliable, and incapable of evaluating the relationship between the dependent variable (price) and the variables of interest (including AquaLift). (Section X.D.)
 - i. Mr. Weir's regression yielded coefficients related to LG's EasyClean feature (i.e., a cleaning feature offered by LG) that are unreasonable and counterintuitive.
 - ii. Mr. Weir's regression results imply that the addition of the EasyClean feature decreased prices by 6% relative to manual clean ovens (despite the fact that an oven with the EasyClean feature could be cleaned manually).
 - iii. Mr. Weir's regression results imply that the addition of both pyrolytic self-clean and EasyClean decreased prices by 6.8% relative to manual clean ovens. This is despite the fact that a consumer could opt to never use the EasyClean feature and effectively receive an oven with pyrolytic self-clean.
- e. Mr. Weir Does Not Test Whether His Regression Results Are Applicable To Other Retail Sales Data Or Other Geographic Areas. Mr. Weir claimed that his hedonic regression results "pertain to sales throughout the nation and all of the Whirlpool brand ovens, and across multiple years."¹⁹ However, Mr. Weir's regression utilized sales data from only one retailer, H.H. Gregg, with sales covering only a subset of geographic areas (i.e., states). Observations associated with these data include: (1) H.H. Gregg accounts for only **Re** of Mr. Weir's claimed damages base; (2) H.H. Gregg stores are located in only a subset of states (and hence H.H. Gregg's prices may not be representative of prices in all geographic areas); (3) oven prices vary across retailers (and hence H.H. Gregg's prices may not be representative of all retailers' prices); and (4) H.H. Gregg filed for bankruptcy in 2017 (which likely is an outcome resulting from trends over the period prior to the bankruptcy filing). Given these factors, Mr. Weir's regression results cannot be automatically extrapolated to other retailers and geographic areas without additional analyses. (Section X.E.)
- f. The Data Underlying Mr. Weir's Regression Analysis Included Various Anomalies. Mr. Weir incorporated in his regression data information from various outlier transactions,

¹⁹ Weir Declaration, p. 37.

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

including claimed purchases for negative prices or for unreasonably low prices (e.g., prices under \$100, \$50, \$10, and even 1 cent). No explanation was provided for including these anomalies or for what these anomalies may represent. Inclusion of outlier transactions may not be appropriate if they represent returns without the proper matching quantities, sales of discounted floor models, or sales of damaged (e.g., dented) models. (**Section X.F.**)

C. Economic Evaluation Of Mr. Weir's Conjoint Analysis

11. From an economic and damages perspective, Mr. Weir's conjoint analysis does not provide a reliable estimate of the percent of an oven price that may be associated with AquaLift.
 - a. Mr. Weir's Descriptions Of Cleaning Features Are Incomplete And Inaccurate. As part of his conjoint survey, Mr. Weir provided survey participants with descriptions of the various oven attributes that differentiate the ovens displayed in each choice set. Mr. Weir allowed for the following "cleaning features": (i) pyrolytic self-clean; (ii) AquaLift self-clean; (iii) AquaLift partial-clean; and (iv) manual clean. From an economic and damages perspective, Mr. Weir's descriptions of the cleaning features are flawed for at least the following reasons. (**Section XI.A.**)
 - i. Cleaning Feature Descriptions Omit Relevant Advantages And Disadvantages. Mr. Weir only provided selective information to survey participants regarding the advantages and disadvantages of the pyrolytic self-clean and AquaLift cleaning methods. (**Section XI.A.1.**)
 - In describing pyrolytic self-clean, Mr. Weir did not mention various disadvantages including potential damage to the oven, safety concerns, required pre-cycle steps, and cooktop disablement during a cycle.
 - In describing the "AquaLift self-clean" and pyrolytic self-clean methods, Mr. Weir failed to note that oven doorframes and windows would require manual cleaning.
 - To the extent that consumers would weigh the omitted disadvantages as being more important than the omitted advantages, Mr. Weir's descriptions would lead survey respondents to overvalue "AquaLift self-clean" (and pyrolytic self-clean) relative to the "AquaLift partial-clean" feature that he claimed represented what consumers actually received from ovens with AquaLift.
 - ii. Labels And Descriptions For The AquaLift Self-Clean And AquaLift Partial-Clean Features Likely Bias Survey Responses. Mr. Weir labeled his descriptions/choices associated with AquaLift as "AquaLift self-clean" and "AquaLift partial-clean." It is likely such descriptions caused unreliable survey results for at least the reasons summarized below. (**Section XI.A.2.**)
 - The term "partial-clean" as a heading descriptor conveys an undesirable less-valued attribute when compared to an "AquaLift self-clean" heading descriptor. It is unlikely that an oven manufacturer would market a cleaning feature as "partial cleaning." Mr.

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

Weir's labeling of the alternative AquaLift self-clean feature as "AquaLift partial-clean" likely biased survey responses. It does not appear that Mr. Weir tested the impact of his labeling on his survey results.

- Mr. Weir appears to have exaggerated the difference between "AquaLift self-clean" and "AquaLift partial-clean" by downplaying the manual cleaning aspects of "AquaLift self-clean" and emphasizing the required manual cleaning aspects of "AquaLift partial-clean." It does not appear that Mr. Weir tested the impact of the content of his descriptors on his survey results.
 - Mr. Weir overstated the limitations of "AquaLift partial-clean" by including the oven door as an area that would require cleaning only in the description for "AquaLift partial-clean" when this limitation actually applies to all of his defined cleaning choices.
- b. Mr. Weir's Conjoint Survey Omits Attributes And Attribute Levels That Would Have Been Relevant To Consumers Purchasing Ovens. Mr. Weir omitted important product attributes from his conjoint analysis, which may introduce a valuation bias to his survey and corresponding market simulation analysis. (**Section XI.B.**)
- i. The set of attributes included in Mr. Weir's conjoint analysis does not match the set of attributes included in his hedonic regression analysis. Within Mr. Weir's framework, the results of his hedonic regression show that Mr. Weir excluded from the conjoint analysis attributes that are predictors of the price consumers are willing to pay.
 - ii. Mr. Weir excluded over 15 attributes (such as drawer, warmer, oven capacity, and cooktop timer) identified as higher in the order of "relative importance" by Whirlpool documents than the attributes included by Mr. Weir.
- c. Mr. Weir's Conjoint Survey Does Not Meet His Own Objectivity Criteria. Contrary to Mr. Weir's claim that his conjoint survey does not violate his objectivity criteria (wherein the respondents must be unaware of the purpose of the survey), his survey design contains aspects that likely would make clear the intentions of the survey and would influence survey participants' answers. (**Section XI.C.**)
- i. Mr. Weir separated "Features" (which is a grouping of five different attributes) and "Cleaning Features," resulting in overemphasis on cleaning features relative to other attributes that consumers would evaluate when selecting an oven for purchase.
 - ii. Mr. Weir labeled two out of four levels for the cleaning feature as "AquaLift self-clean" and "AquaLift partial-clean." Given Mr. Weir's use of a sample of respondents that had purchased Whirlpool-manufactured ovens, the decision to use a Cleaning Features attribute in which two of the four levels were related to AquaLift could potentially (a) reveal the purpose of the survey and (b) lead to biased results due to the (potential) inclusion of respondents who purchased an oven with AquaLift and/or have prior knowledge of AquaLift.

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

- iii. The descriptions that Mr. Weir presented for his attribute levels systematically differed between the cleaning feature attributes and the “distractor” attributes (e.g., multiple sentences used to describe each cleaning feature attribute vs. single sentences or phrases used to describe the other attributes in the survey). These systematic differences in his description likely would have revealed to at least some consumers the focus of the conjoint survey.
- d. The Choice Sets Presented To Survey Participants Do Not Represent Realistic Product Choices Available In The Market. The choice sets presented in Mr. Weir’s conjoint survey include product choices that do not represent available choices in the market.
 - i. Prices Presented In Choice Sets Are Not Consistent With Real World Prices. Based upon my review of the choice sets presented to survey participants, it is my understanding that Mr. Weir allowed for only five possible oven prices in his choice sets, ranging from \$600 to \$1,200. A comparison of H.H. Gregg retail prices and the five price points contained in Mr. Weir’s conjoint survey indicates that, despite his claims, Mr. Weir’s prices are not consistent with the prices that exist in the market. (**Section XI.D.1.**)
 - The majority of Whirlpool and Maytag oven choices presented to survey participants were listed at a price above the actual retail prices in the H.H. Gregg sales data.
 - The majority of KitchenAid and Jenn-Air oven choices presented to survey participants were listed at a price below the actual retail prices in the H.H. Gregg sales data.
 - ii. Unrealistic Choice Sets Yield Unreliable Survey Results. From an economic and damages perspective, unrealistic choice sets yield outcomes that are not consistent with actual consumer behavior. (**Section XI.D.2.**)
 - In general, Jenn-Air ovens are significantly underpriced in Mr. Weir’s conjoint survey (e.g., a Jenn-Air stainless steel range at \$750) compared to actual prices observed in the H.H. Gregg data.
 - Contrary to Mr. Weir’s assertions, the choice sets presented in his conjoint survey include product choices that do not have “real world price points” and do not represent realistic product choices available in the market.
- e. The Assumptions Survey Participants Were Asked To Make Regarding The Choice Sets Likely Would Yield Unreliable Results. Mr. Weir instructed survey participants to make broad assumptions about the products listed in each choice set. For example, survey participants were asked to assume all non-identified attributes were the same across all products within a choice set. Given the nature of the attributes presented, Mr. Weir’s instructions about the assumptions regarding the choice sets likely would yield unreliable results because of at least the following factors. (**Section XI.E.**)
 - i. Underlying assumptions regarding different features are likely to vary across participants. Different participants may make different assumptions about the same feature. Depending

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

upon the extent of variation in the assumptions made by the participants, the same survey choices may be interpreted differently by participants. (**Section XI.E.1.**)

- ii. Inclusion of choice sets with incomparable “Features” may contradict the instruction prompts and cause confusion for survey participants. (**Section XI.E.2.**)
 - Unlike other attributes, Mr. Weir’s “Features” attribute does not include levels within the same feature, but compares different features (such as digital controls versus number of racks) across different choices in a choice set.
 - In such scenarios, at least some consumers likely would have been confused by the prompts instructing participants to assume that there were no other options available and to assume that all other features not mentioned in the exercise were the same across the ovens shown.
 - For example, in the case of two options, one with digital controls and another with an extra rack, it is unclear whether a participant should assume that (a) there is a trade-off between digital controls and an extra rack, and that no oven in the market offers both, or (b) because digital controls is not mentioned in an option, it can be assumed to be present.
- f. Mr. Weir’s Conjoint Survey Does Not Provide A Value Tied To The Putative Class Period. Mr. Weir opined that “the survey findings are projectable to all class members and class purchases of Whirlpool branded AquaLift ovens for the class period of 2012 through the present.”²⁰ However, Mr. Weir did not establish that the current 2018 values obtained from his conjoint survey and market simulation would be representative of (or correlated with) putative Class members’ preferences during the entire putative Class period. (**Section XI.F.**)
 - i. Mr. Weir provided no analytical discussion or investigation to demonstrate that his findings regarding consumer preferences would apply over the entire putative Class period.
 - ii. Mr. Weir discussed preferences regarding oven purchases with eight focus group members. However, Mr. Weir provided no analytical justification for his conclusion that eight interviews are a sufficient basis to generalize his results over the entire putative Class, especially given the number of models introduced and discontinued over the entire putative Class period.
 - iii. Mr. Weir failed to address the inconsistencies between his findings from the eight interviews he conducted and other evidence presented in his declaration. For example, in his discussion of supply-side considerations, Mr. Weir acknowledged consumer preferences change over time.²¹

²⁰ Weir Declaration, p. 20.

²¹ Weir Declaration, p. 22.

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

-
- g. Mr. Weir's Market Simulations Are Unreliable For Evaluating A Claimed Price Premium. Mr. Weir's proposed market simulations (based upon his conjoint survey results) suffer from at least the following deficiencies that render them unreliable for evaluating the claimed "percentage price premium." (**Section XI.G.**)
- i. Mr. Weir's proposed market simulations do not include competitor products and hence do not reflect the market simulation procedure specified by Sawtooth Software (the software package used by Mr. Weir). (**Section XI.G.1.**)
 - ii. Mr. Weir's discussion of supply-side factors is incomplete as it does not represent supply-side factors that would be necessary to determine a market price absent the alleged misrepresentation. (**Section XI.G.2.**)
 - Mr. Weir claimed that use of the historical sales and prices incorporated into his analysis provide the necessary supply-side influences to conclude that the results of his conjoint-related analyses yield price premium conclusions. However, historical sales and prices (by themselves) do not represent supply-side factors that would have been relevant absent the alleged wrongful conduct. In addition, as discussed previously, the one conjoint choice set provided by Mr. Weir in his declaration does not contain a realistic matching of oven attributes and associated pricing. (That is, Mr. Weir includes in his choice set a Jenn-Air oven at a price of \$750. Jenn-Air ovens do not sell for \$750.) Without a realistic matching of oven attributes and associated pricing, Mr. Weir cannot even begin to make the argument that his conjoint analysis provides price premium information because it uses actual prices.
 - iii. Mr. Weir's proposed market simulations at best measure willingness-to-pay (assuming he performed the simulation procedure correctly)²² but do not measure a "price premium." (**Section XI.G.3.**)
 - Sawtooth documentation specifically states that its market simulator concentrates solely on the demand side of the market while acknowledging the importance of accounting for the costs of producing different products. Sawtooth documentation notes that (1) market simulators (alone and in isolation) measure only what prices could be charged (and not what prices would be charged) and that (2) market simulation approaches address only demand factors.
 - Sawtooth documentation states that measures of willingness-to-pay (such as that proposed by Mr. Weir) overstate the change in equilibrium price with the change in a product attribute. The difference between a consumer's willingness to pay and the actual price paid is called "consumer surplus" – a universally accepted economic

²² As of the issuance of my declaration, aside from raw survey responses and his claimed percentage price premium value, Plaintiffs and Mr. Weir have not produced any programs or program output detailing Mr. Weir's analysis of his conjoint survey responses (either the Hierarchical Bayes regression or the market simulation procedure). Because of this lack of production, Mr. Weir's analyses of the survey response data cannot be evaluated and instead represent Mr. Weir's unsupported assurances that the procedures were performed correctly. I reserve the right to further evaluate Mr. Weir's conjoint survey analysis should such additional documentation be produced by Plaintiffs and Mr. Weir.

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

distinction. Willingness to pay for a product actually purchased always would be greater than or equal to market price – or the product would not be purchased.

D. Determination Of Claimed Economic Injury And Damages As A Result Of AquaLift Requires Individualized Inquiry

12. For the Court's consideration, it is my understanding that the Named Plaintiff(s) in a consumer class action matter must present a proposed damages approach that is consistent with the asserted liability theory and subject to common, Class-wide proof. However, from an economic and damages perspective, the greater the number of differences in underlying characteristics (e.g., reasons for purchase, knowledge and perceptions regarding AquaLift, benefits received, and prices paid, among other things), the more difficult it is to evaluate Class-wide damages using common proof. In such situations, individual inquiry (and not common proof) is required to reliably evaluate claimed damages.
13. In this matter, determining whether and to what extent putative Class members were injured as a result of alleged misrepresentations regarding AquaLift requires individualized inquiry and is not amenable to proof on a Class-wide (i.e., common proof) basis. Proof of alleged injury and resulting damages, if any, depends upon individualized inquiry into the facts and circumstances of each putative Class member's purchase of the Challenged Products (for at least the reasons summarized here and presented in detail later in my declaration).
 - a. Challenged Product Purchases For Reasons Unrelated To The Challenged Attribute. Consumers who purchase their ovens solely (or in large part) for reasons unrelated to the alleged wrongful conduct were not injured (or were not injured to the same extent) as consumers who purchased solely (or in large part) because of the alleged wrongful conduct. In economic terms, such consumers received the value for which they paid. Hence, individualized inquiry is required to determine each putative Class member's reasons for purchasing the Challenged Products and whether a corresponding claimed injury may exist. (Section XIII.A.)

i. Redacted

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

Red which indicates that other features must have driven their decision to purchase their ovens at the price paid.²³

- ii. Whirlpool marketing documents and Named Plaintiff deposition testimony illustrate that consumers purchase ovens for a variety of reasons unrelated to the cleaning feature, including the aesthetics, the oven drawer, controls, color, smooth cooktop, energy efficiency, and being part of a kitchen suite purchase, among others.
- b. Putative Class Members' Knowledge And Perceptions At The Time Of Purchase Regarding AquaLift. Whether and to what extent a putative Class member was harmed depends (in part) upon that putative Class member's knowledge and perceptions relating to AquaLift. As a general proposition, consumers purchasing higher-priced items will conduct research on the attributes of the item being purchased. If a consumer (a) had knowledge relating to AquaLift (i.e., the consumer was not misled) and (b) was willing to purchase the Challenged Products at the actual purchase price, then that consumer did not suffer economic injury. Alternatively stated, if a consumer had knowledge of the attributes of a product and agreed to purchase that product at a given price, then that consumer valued the product at or above that price and received the full value for the amount paid. Putative Class members would have been able to learn how AquaLift functions from at least the following sources.
- i. Information Made Publicly Available By Whirlpool. Whirlpool instructions, including those available on the Whirlpool website (e.g., AquaLift FAQ page), in the Use Care guide, in the Quick Reference Guide, and as labels attached to the oven, disclose the steps required to clean the oven with AquaLift. Similarly, Whirlpool instructional videos note the potential need to use the included cleaning kit to "scrape, scrub, and sponge away any remaining soils or stains."²⁴ Given the availability of such information, at least some consumers would have been aware of how AquaLift functions at the time of purchase. (Section XIII.B.1.)
 - ii. Consumer And Online Reviews Of The Challenged Products. Many Named Plaintiffs testified that, following their oven purchase and initial experience with AquaLift, they went online and found negative reviews of AquaLift.²⁵ Putative Class members who sought out product reviews or consumer reports regarding the ovens with AquaLift prior to their purchase likely would have seen such negative reviews and thus been aware of how AquaLift functions. (Section XIII.B.2.)
 - iii. Conversations With Sales Representatives. Many of the Named Plaintiffs spoke with sales associates prior to purchasing the Challenge Products,²⁶ and one Named Plaintiff

²³ "Aqualift Usage And Installation." Draft Whirlpool Presentation. (WSC0027522 – 534 at 525.)

²⁴ "Video: What is AquaLift," video. (http://producthelp.whirlpool.com/Cooking/Wall_Ovens_and_Ranges/Oven_Cleaning_and_Care/VIDEO%3A_What_is_Aqualift%3F, viewed on March 28, 2018.) See also, "Video: How does AquaLift clean?," video. (http://producthelp.whirlpool.com/Cooking/Wall_Ovens_and_Ranges/Oven_Cleaning_and_Care/VIDEO%3A_How_does_AquaLift_clean%3F, viewed on March 28, 2018.)

²⁵ See, e.g., Oliarny Deposition, p. 54; Limpede Deposition, pp. 68 – 69; and Miljenovic Deposition, pp. 365 – 366.

²⁶ See, e.g., Bliss Deposition, pp. 69 – 70; Oliarny Deposition, p. 29; and Simmons Deposition, pp. 36 – 37.

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

(Ms. Limpede) is a sales associate at a Home Depot who works in the major appliance department.²⁷ Ms. Limpede testified that after her experience with AquaLift, she would tell interested customers that although the oven was a good product, AquaLift does not work.²⁸ Ms. Limpede also testified that Maytag sales representatives would perform demonstrations of the feature, though she was unable to witness such a demonstration.²⁹ Putative Class members who discussed the Challenged Products with informed sales representatives likely would have been aware of how AquaLift functions. (Section XIII.B.3.)

- c. Putative Class Members Who Were Satisfied With AquaLift. Putative Class members who are satisfied with their purchase of the Challenged Products in general, and AquaLift in particular, did not suffer economic harm because satisfied consumers received the economic value for which they bargained. (Section XIII.C.)

i. Redacted ³⁰

ii. Redacted ³¹

iii. Online customer reviews of the Challenged Products demonstrate numerous consumers were (and are) satisfied with their purchase.

iv. Sales of ovens with AquaLift have not decreased over time, suggesting that customers in the aggregate have not been dissatisfied with their purchases of the Challenged Products.

- d. Significant Variation In Purchase Prices. The prices that consumers paid for the Challenged Products varied widely over the putative Class period and across numerous dimensions, including (at least) the brand of the purchased oven, the model, whether they paid a promoted (i.e., “on sale”) or non-promoted price, the retailer, the state in which the purchase was made, the date of purchase, and whether an oven purchased was a lower-priced floor model, a lower-priced discontinued model, or a dented or scratched model. The significant variation in individual actual prices paid by putative Class members (across the aforementioned dimensions) negates the ability of a Class-wide (common proof) damages approach to yield a reliable and accurate estimate of a claimed percentage price premium with a nexus to Named Plaintiffs’ theory of liability. (Section XIII.D.)

²⁷ Limpede Deposition, pp. 14 and 16.

²⁸ Limpede Deposition, p. 22.

²⁹ Limpede Deposition, pp. 34 – 35.

³⁰ Ganus Deposition, pp. 55 and 58 and Exhibit 29.

³¹ “Aqualift Usage And Installation” Draft Whirlpool Presentation. (WSC0027522 – 534 at 526 – 527.)

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

14. The details of my analyses and the bases for my opinions are contained in the remainder of this declaration.

IV. QUALIFICATIONS AND EXPERIENCE

15. I am a Managing Principal at Analysis Group, Inc. ("AG"). AG provides economic, financial, and business strategy consulting to its clients and specializes in the interpretation of economic and financial data and the development of economic and financial models. Nationally, AG consists of approximately 700 professionals who specialize in, among other things, the fields of economics, accounting, finance, statistics, and strategy consulting.
16. My primary responsibility at AG is to provide economic, financial, and/or damages-related consulting services to clients. Throughout my career I have provided these consulting services in class certification matters, antitrust cases, breach of contract cases, intellectual property cases, fraud-related cases, business tort cases, business interruption cases, and securities-related cases, among others. I have worked on engagements (or submitted reports) relating to class certification issues numerous times, including but not limited to matters relating to beverages (alcoholic and non-alcoholic), fast food, non-stick cooking sprays, cooking oils, gas mileage, hand soap, facial cream, lipstick, foundation, computer tablets, printers, computers, windows, and probiotics, among others.
17. I specialize in the application of economic principles to complex commercial disputes, and I am generally retained in cases requiring economic, financial, and/or damages-related analyses. Financial models I have constructed or evaluated in the past have contained as components revenue analyses, cost analyses, assessments of capacity, assessments of profitability, assessments of reasonable royalties, and assessments of the competitive business environment. I also have evaluated various claims of economic value using peer group comparisons and/or discounted cash

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

flow analyses relating to projected future earnings streams. During the course of my career, I have frequently performed economic analyses using large databases of information and complex computer models. I have provided expert testimony in deposition and trial settings numerous times.

18. I received my B.A. in Economics from the University of Notre Dame in 1977, my M.A. in Economics from the University of Southern California in 1979, and my Ph.D. in Economics from Arizona State University in 1983. Attached as **Exhibit 1** is a true and correct copy of my current resume. A listing of publications I have authored is contained in my resume. Attached as **Exhibit 2** is my trial and deposition testimony experience. My business address is Analysis Group, Inc., Park Place Center, 2911 Turtle Creek Blvd., Suite 600, Dallas, Texas, 75219.
19. AG is being compensated based upon hours incurred and the hourly rates of the personnel involved. Payment to AG is not contingent upon my findings or the outcome of this matter. AG is being compensated at a rate of \$625 per hour for my time. Hourly rates for other staff at AG working on this matter range from \$190 to \$550 per hour, depending upon the level and experience of the staff involved.

V. FACTS, DATA, AND INFORMATION RECEIVED

20. The facts, data, and information available to me in forming my opinions are contained in **Exhibit 3** or elsewhere in my declaration (including footnotes and exhibits). Contained in **Exhibit 4** is a listing of the deponents whose deposition transcripts are cited in the text of my declaration. Examples of the types of information available to me include the following:

- a. legal documents (e.g., First Amended Class Action Complaint; Plaintiffs' Motion for Class Certification; interrogatory responses);
- b. deposition transcripts (e.g., Deposition Transcript of Barbara Barnes taken September 1, 2017; Deposition Transcript of Laura Bliss taken August 8, 2017; Deposition Transcript of Matt Ganus taken July 18, 2017; Deposition Transcript of Steven Key taken August 16, 2017;

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

Deposition Transcript of Pamela Klyn taken June 7, 2017; Deposition Transcript of Kathryn Limpede taken August 7, 2017; Deposition Transcript of Louise Miljenovic taken October 18, 2017; Deposition Transcript of Deatrick Moore taken October 25, 2017; Deposition Transcript of Candace Oliarny taken August 8, 2017; Deposition Transcript of Toby Schechner taken September 26, 2017; Deposition Transcript of Joel Sells taken July 19, 2017; Deposition Transcript of Beverly Simmons taken October 30, 2017; Deposition Transcript of Mary Ellen Thome taken November 2, 2017; Deposition Transcript of Richard Thome taken November 2, 2017; Deposition Transcript of Robert Crawford taken October 26, 2017);

- c. declarations (i.e., Declaration of Colin B. Weir dated February 12, 2018 and associated support materials);
- d. documents produced by Plaintiffs (e.g., pricing and sales data subpoenaed from various retailers);
- e. documents produced by Whirlpool (e.g., presentations; user instructions; wholesale data);
- f. information independently obtained (e.g., product information from oven manufacturers' websites; online reviews of Challenged Products; Sawtooth Software documentation).

21. My analyses and opinions are based upon the information available, standard economic theory, and my education and training. The information I am relying upon is information typically relied upon by experts in my field. I reserve the ability to (a) review documents, deposition transcripts, expert reports, or other information still to be produced by the Parties to this dispute and (b) supplement my opinions based upon that review, if appropriate. I also reserve the right to use demonstrative exhibits and/or other information at hearings/trial to explain and illustrate my opinions.

VI. OVERVIEW OF PARTIES

A. Whirlpool Corporation

22. Founded in 1911,³² Whirlpool Corporation ("Whirlpool") is based in Benton Harbor, Michigan.³³ According to Whirlpool, it is the "number one major appliance manufacturer in the world" and

³² "History & Heritage." (<http://www.whirlpoolcorp.com/history>, viewed on March 28, 2018.)

³³ Whirlpool Corporation 2017 Form 10-K, p. 1.

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

markets products in nearly every country around the world.³⁴ Whirlpool's 15 brands include both global and regional brands such as Whirlpool, KitchenAid, Maytag, and Jenn-Air.³⁵ Its primary products include (a) laundry appliances; (b) refrigerators and freezers; (c) cooking appliances; (d) dishwashers; and (e) mixers and other small domestic appliances.³⁶

B. Named Plaintiffs

23. I understand that at present there are nine individuals who are Named Plaintiffs in this litigation. An overview of each Named Plaintiff's purchase of the Challenged Products is provided in **Table 1** and **Exhibit 5**.

Table 1
Overview Of Named Plaintiffs

Named Plaintiff	Product Purchased	Purchase Location	Date Purchased	Price Paid	Promotions
Barbara Barnes	KitchenAid Electric Free Standing Range, Model: KERS306BSS	Florida (Lowe's)	5/25/2013	\$1,349.91	May have purchased on sale but cannot recall
Laura Bliss	Whirlpool Electric Range, Model: WFE540H0ES	Michigan (Home Depo)	5/19/2016	\$628.20	10% off
Kathryn Limpede	Maytag Gas Range, Model: MGR8674AW	Idaho (Home Depot)	12/11/2012	\$749.00	Yes, best sale of the year
Louise Miljenovic	KitchenAid Gas Range, Model: KGRS202BWH	New Jersey (Appliance Gallery)	11/27/2012	\$989.00	Yes, reduced price for purchasing an appliance suite
Candace Oliarny	Whirlpool Gas Stove, Model: WEG730H0DS	Idaho (CHF Home Furnishings)	11/13/2015	\$1,376.94	None
Toby Schechner	Whirlpool 6.2 Cu. Ft. Electric Range Oven, Model: WFE540H0AH1	Florida (Lowe's)	11/24/2014	\$667.60	5% back for signing up for a credit card
Beverly Simmons	Whirlpool Gas Range, Model: WFG540H0ES	New Mexico (Lowe's)	8/5/2015	\$809.10	10% off
Richard and Mary Ellen Thome	Whirlpool Electric Range, Model: WFE540H0AS	Arizona (Lowe's)	Mar 2014 ³⁷	\$776.63	Likely on sale

³⁴ Whirlpool Corporation 2017 Form 10-K, p. 3.

³⁵ Whirlpool Corporation 2017 Form 10-K, p. 4.

³⁶ Whirlpool Corporation 2017 Form 10-K, p. 5.

³⁷ Ms. Thome testified that she purchased her oven with AquaLift in March 2014 while her husband, Mr. Thome, testified the oven was purchased sometime in 2014. (Mary Ellen Thome Deposition, p. 68 and Richard Thome Deposition, pp. 54 - 55.)

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

VII. BACKGROUND INFORMATION REGARDING CLEANING FEATURES

24. Based upon my review of the documentary evidence, Mr. Weir's database of oven attributes, and my independent research, there appear to be three broad categories of cleaning features for ovens: (a) pyrolytic / high-heat self-clean, (b) steam clean, and (c) low-heat self-clean (e.g., AquaLift).³⁸ Based upon Mr. Weir's database of oven attributes, ovens will either be equipped with one of the aforementioned cleaning features or have no cleaning feature (i.e., manual clean only). In some cases, an oven equipped with a pyrolytic self-clean option also will include a steam clean option. However, an oven equipped with AquaLift (i.e., Whirlpool's low-heat self-clean option) will never include a pyrolytic self-clean or steam clean option.³⁹ The three cleaning features are described in more detail below.⁴⁰

A. Pyrolytic Self-Clean

25. It is my understanding that pyrolytic or high-heat self-clean is a cleaning feature that uses high heat to burn off leftover soils in the interior of the oven.⁴¹ During a pyrolytic self-clean cycle, the inside of the oven typically reaches temperatures of approximately 800 degrees Fahrenheit and runs from two to four hours with the door locked.⁴² Once the pyrolytic self-clean cycle is finished,

³⁸ For example, Ms. Pamela Klyn, Vice President of Global Product Organization at Whirlpool, testified that there are three cleaning categories: (a) pyrolytic self-clean, (b) steam clean, and (c) AquaLift (i.e., low-heat self-clean). (Klyn Deposition, p. 86. See also Sells Deposition, pp. 122 – 123.)

³⁹ Based upon Mr. Weir's database of oven attributes, ovens with AquaLift never have a pyrolytic self-clean or steam clean option.

⁴⁰ The proceeding descriptions of cleaning features are based upon the documentary evidence produced in this matter, deposition testimony, and my independent research (e.g., oven user manuals, online reviews, and online articles).

⁴¹ Klyn Deposition, p. 86.

⁴² "AquaLift Technology: Get Your Oven Clean In Less Than 1 Hour!" presentation slides. (Ganus Deposition, Exhibit 32. (WSC0024334 – 370, at 337.)) For example, the pyrolytic self-clean cycle for GE ovens heats the oven up to 880 degrees Fahrenheit and takes approximately one and half to three hours. ("Cleaning Options For Ranges." (<http://www.geappliances.com/ge/range-stove/range-cleaning-options.htm>), viewed on March 14, 2018.))

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

it takes the oven approximately one hour to cool down and remaining ash must be wiped out of the oven.⁴³

26. It is my understanding that the primary benefit of pyrolytic self-clean compared to the other self-cleaning options is that it is typically effective at cleaning relatively heavier soils in the oven.⁴⁴ In addition, pyrolytic self-clean usually works to remove soils from all surfaces of the oven interior.⁴⁵ However, manual cleaning before and after a pyrolytic self-clean cycle is still required, including removing larger food debris to avoid smoking during the cycle, wiping away ash, and cleaning around the door and window.⁴⁶
27. There are numerous drawbacks of pyrolytic self-clean, including (at least) the following:
- a. Cycles Take A Significant Amount Of Time. Pyrolytic self-clean requires up to four (or more) hours to complete.⁴⁷ During the pyrolytic self-clean cycle, the oven and stovetop are locked from use.⁴⁸
 - b. Does Not Clean Inside Oven Door. Pyrolytic self-clean does not clean the inside part of the oven door (which requires manual cleaning).⁴⁹

⁴³ "AquaLift Technology: Get Your Oven Clean In Less Than 1 Hour!" presentation slides. (Ganus Deposition, Exhibit 32. (WSC0024334 – 370, at 337.)) See also Klyn Deposition, pp. 86 – 87.

⁴⁴ I understand that the high temperatures during a pyrolytic self-clean cycle incinerate all food and soil inside the oven, which results in less manual cleaning after the end of the cycle. (Moore Deposition, pp. 204 – 205. See also Key Deposition, pp. 77 – 79. See also Klyn Deposition, p. 86.

⁴⁵ Crawford Deposition, pp. 49 – 51.

⁴⁶ Crawford Deposition, pp. 23 – 25 and 49 – 50. See also Sells Deposition, pp. 41 – 42.

⁴⁷ "AquaLift Technology: Get Your Oven Clean In Less Than 1 Hour!" presentation slides. (Ganus Deposition, Exhibit 32. (WSC0024334 – 370, at 337.)) Some pyrolytic self-clean cycles can take longer than four hours. For example, the pyrolytic self-clean feature included in the LG oven LRE3083ST has a five-hour cycle option (for a "heavily soiled oven cavity"). (User Manual for LG Oven LRE3083ST, p. 34. (Downloaded from <http://www.lg.com/us/support-product/lg-LRE3083ST#manuals> on March 16, 2018.))

⁴⁸ Moore Deposition, p. 114. See also Key Deposition, p. 78. For example, according to a GE oven user manual, the stovetop burners are automatically disabled during the pyrolytic self-clean cycle for some oven models. (User Manual for GE Oven JS750SFSS, p. 21. (Downloaded from <http://products.geappliances.com/appliance/gea-specs/JS750SFSS>, on March 22, 2018.))

⁴⁹ Based upon deposition testimony and user manuals of pyrolytic self-clean ovens, it is my understanding that the inside part of the oven door requires manual cleaning. (Klyn Deposition, pp. 86 – 87. See also Moore Deposition, pp. 205 – 206. See, e.g., User Manual for Samsung Oven NE59J3420SS, p. 44. (Downloaded from <https://www.samsung.com/us/home-appliances/ranges/electric/ne59j3420ss-electric-range-with-fan-convection-stainless-steel-ne59j3420ss-aa/> on March 20, 2018.))

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

- c. Potential Damage To Oven. The oven can be damaged from the high temperatures required for a pyrolytic self-clean cycle. Damage can be done to specific components of the oven, such as the door gasket and window. For example, the oven door gasket (i.e., a gasket that fits around the door of the oven to keep heat and fumes in) can be damaged after multiple uses of pyrolytic self-clean.⁵⁰ As another example, the window on the oven door can be permanently stained from soil being burnt on during a pyrolytic self-clean cycle.⁵¹
- d. Safety Concerns. According to a consumer insights document produced by Whirlpool, some key frustrations of pyrolytic self-clean are (i) safety fears, (ii) unpleasant smells/fumes, and (iii) the inability to trust it enough to leave the house (given the long run time).⁵² The safety concerns related to pyrolytic self-clean are further evidenced by oven user manuals. For example, the user manual for Samsung's NE59J3420SS oven contains the following warnings with respect to pyrolytic self-clean:
 - i. "During the [pyrolytic] self-cleaning cycle, the outside of the range will become very hot to the touch. **Do not** leave small children unattended near the appliance."
 - ii. "Some birds are extremely sensitive to the fumes given off during the [pyrolytic] self-cleaning cycle of any range. Move birds to another well-ventilated room."
 - iii. "**Do not** force the oven door open. This can damage the automatic door locking system. Use care when opening the oven door after the [pyrolytic] self-cleaning cycle is complete. Stand to the side of the oven when opening the door to allow hot air or steam to escape. The oven may still be **VERY HOT**."⁵³

B. Steam Clean

28. It is my understanding that steam clean is a cleaning feature with a shorter cycle time that is intended to clean lighter soils on the oven cavity bottom.⁵⁴ Generally, to perform a steam clean cycle, the user pours a small amount of water (e.g., one cup of water) into the cavity of the oven.

⁵⁰ A damaged gasket can result in dangerous smoke and fumes entering the home during the use of the oven. ("Self-Cleaning Oven Heat Damage." (<http://homeguides.sfgate.com/selfcleaning-oven-heat-damage-25703.html>, viewed on March 22, 2018.)) Most user manuals for ovens equipped with pyrolytic self-clean contain warnings regarding the maintenance of the oven door gasket. (See, e.g., User Manual for GE Oven JS750SFSS, p. 21. (Downloaded from <http://products.geappliances.com/appliance/gea-specs/JS750SFSS> on March 22, 2018.))

⁵¹ Key Deposition, p. 77. See also Moore Deposition, pp. 206 – 207. See also NAR Consumer Insights dated January 9, 2015. (WSC0055642 – 670, at 658.)

⁵² NAR Consumer Insights dated January 9, 2015. (WSC0055642 – 670, at 658.)

⁵³ User Manual for Samsung Oven NE59J3420SS, p. 44. (Downloaded from <https://www.samsung.com/us/home-appliances/ranges/electric/ne59j3420ss-electric-range-with-fan-convection-stainless-steel-ne59j3420ss-aa/> on March 20, 2018.) (Bracketed text added for clarification.) (Bolded text included in original.)

⁵⁴ "AquaLift Technology: Get Your Oven Clean In Less Than 1 Hour!" presentation slides. (Ganus Deposition, Exhibit 32. (WSC0024334 – 370, at 338.))

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

The oven then heats up to temperatures high enough to perform the steam cleaning process, but at lower temperatures than those reached during a pyrolytic self-clean cycle.⁵⁵ A steam clean cycle typically lasts around 20 minutes.⁵⁶ Once the cycle is complete, users must remove leftover water and wipe/scrub away remaining soils.⁵⁷

29. I understand that the key benefits of steam clean is that it is odor free and shorter than pyrolytic self-clean. Due to its lower temperature and shorter cycle time, there is a lower possibility of damaging the oven (as is the case with pyrolytic self-clean). In addition, for at least some ovens, the user is not required to remove pans and racks during a steam clean cycle.⁵⁸ The aforementioned benefits of steam clean allow it to be used more often, making it a more reasonable everyday cleaning option.⁵⁹

30. I understand that the main drawback of steam clean is that it is not as effective at cleaning the oven, particularly heavily soiled ovens, as pyrolytic self-clean.⁶⁰ I understand that steam clean is usually included as an option alongside pyrolytic self-clean.⁶¹ Steam clean is typically described

⁵⁵ For example, a Samsung troubleshooting guide indicates that its steam clean cycle reaches a maximum temperature of 716 degrees Fahrenheit. ("Troubleshooting Guide: FCQ321HTUX How to Use Steam Cleaning," dated December 21, 2017. (http://support-us.samsung.com/cyber/popup/iframe/pop_troubleshooting_fr.jsp?idx=359980&modelname=FCQ321HTUX, viewed on March 20, 2018.))

⁵⁶ "AquaLift Technology: Get Your Oven Clean In Less Than 1 Hour!" presentation slides. (Ganus Deposition, Exhibit 32. (WSC0024334 – 370, at 338.)) See, e.g., User Manual for Samsung Oven NE59J3420SS, p. 46. (Downloaded from <https://www.samsung.com/us/home-appliances/ranges/electric/ne59j3420ss-electric-range-with-fan-convection-stainlesssteel-ne59j3420ss-aa/> on March 20, 2018.))

⁵⁷ "Cleaning Options For Ranges." (<http://www.geappliances.com/ge/range-stove/range-cleaning-options.htm>, viewed on March 14, 2018.))

⁵⁸ "Cleaning Options For Ranges." (<http://www.geappliances.com/ge/range-stove/range-cleaning-options.htm>, viewed on March 14, 2018.))

⁵⁹ "AquaLift Technology: Get Your Oven Clean In Less Than 1 Hour!" presentation slides. (Ganus Deposition, Exhibit 32. (WSC0024334 – 370, at 338.))

⁶⁰ Sells Deposition, pp. 92 – 93.

⁶¹ "AquaLift Technology: Get Your Oven Clean In Less Than 1 Hour!" presentation slides. (Ganus Deposition, Exhibit 32. (WSC0024334 – 370, at 338.)) See also Klyn Deposition, p. 89. The retail sales data produced in this matter indicates that the majority of steam clean ovens also are equipped with pyrolytic self-clean.

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

by manufacturers as an alternative to pyrolytic self-clean for “light cleaning” needs, with the stipulation that heavier-duty soils will likely require pyrolytic self-clean.⁶² In numerous user manuals and other documentary evidence, steam clean is recommended as a first step prior to manual cleaning or running a pyrolytic self-clean in order to help “loosen soils.”⁶³

C. Low-Heat Self-Clean

31. It is my understanding that low-heat self-clean is a cleaning feature that uses less time and lower temperatures than pyrolytic self-clean while cleaning more effectively than steam clean. According to a 2014 Whirlpool presentation, AquaLift was the first low-heat self-clean option on the market (in early 2012).⁶⁴

32. Based upon the manufacturer descriptions of AquaLift, this low-heat self-clean feature is enabled by advanced enamel coatings that are applied to the interior of the ovens.⁶⁵ According to a Whirlpool presentation, Redacted

Redacted

Redacted⁶⁶ For ovens with AquaLift, this special coating allows baked on soils to soften or loosen

⁶² See, e.g., User Manual for Samsung Oven NE59J3420SS, p. 46. (Downloaded from <https://www.samsung.com/us/home-appliances/ranges/electric/ne59j3420ss-electric-range-with-fan-convection-stainless-steel-ne59j3420ss-aa/> on March 20, 2018.)

⁶³ “AquaLift Technology: Get Your Oven Clean In Less Than 1 Hour!” presentation slides. (Ganus Deposition, Exhibit 32. (WSC0024334 – 370, at 338.)) See, e.g., User Manual for Frigidaire Oven FGES3065PF, p. 42. (Downloaded from <https://www.frigidaire.com/Kitchen-Appliances/Ranges/Electric-Range/FGES3065PF/> on March 16, 2018.)

⁶⁴ “Oven Cleaning ‘The Story,’” draft presentation slides, dated March 2014. (Key Deposition, Exhibit 141. (WSC0016686 – 719, at 689.))

⁶⁵ “AquaLift Technology: Get Your Oven Clean In Less Than 1 Hour!” presentation slides. (Ganus Deposition, Exhibit 32. (WSC0024334 – 370, at 342.))

⁶⁶ Redacted

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

from the surface during a 40-minute clean cycle using temperatures in the range of just 200 degrees Fahrenheit.⁶⁷

33. I understand that one of Plaintiffs' contentions in this case is that AquaLift is not as effective at cleaning the entire interior of the oven as pyrolytic self-clean. As a result, Plaintiffs argue more manual cleaning is required after an AquaLift self-clean cycle than a pyrolytic self-clean.

VIII. SUMMARY OF THE WEIR DECLARATION

34. In the Weir Declaration, Mr. Weir proposed two methods for calculating the claimed price premium attributable to AquaLift: conjoint analysis and hedonic regression.⁶⁸ Mr. Weir ultimately opines to a claimed percentage price premium to apply to putative Class members' expenditures on ovens. The analyses and opinions in the Weir Declaration are summarized below.

A. Hedonic Regression

1. Description Of Data

35. Mr. Weir utilized two sources of data for his hedonic regression: retail sales data from H.H. Gregg and data on product level attributes collected by Mr. Weir. Mr. Weir received additional data that he did not utilize in his regression analysis.

⁶⁷ "AquaLift Technology: Get Your Oven Clean In Less Than 1 Hour!" presentation slides. (Ganus Deposition, Exhibit 32. (WSC0024334 – 370, at 342.))

⁶⁸ Weir Declaration, p. 3.

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

- a. **Retail Sales Data.** Counsel for Plaintiffs subpoenaed and obtained oven sales data from the following retailers: H.H. Gregg, Best Buy, Home Depot,⁶⁹ Lowe's,⁷⁰ and Sears.^{71, 72}
- i. The data provided by each of these retailers generally contain total unit sales and total dollar sales of the Challenged Products. The data generally are available during the 2012 to 2017 time period. The retail sales data used by Mr. Weir is summarized in **Table 2** (with the exception of Home Depot data, which does not contain oven model information for its sales).

Table 2
Summary Of Retail Sales Data

Retailer	Unit Of Observation	Time Period	Source
H.H. Gregg	Individual transactions	Jan 2012 – Jun 2017 ⁷³	HHGREGG000001.xlsx
Best Buy	Model by month	Apr 2012 – Oct 2017	BBY_WP_0000399.txt
Lowe's	Model by week	Feb 2014 – Dec 2017 ⁷⁴	LOWES000010.xlsx
Sears	Model by state and month	Feb 2012 – Oct 2017	SEARS000002.xlsx

- ii. The H.H. Gregg sales data are the only data that contain unit sales and dollar sales for Challenged Products, non-challenged Whirlpool branded ovens, and competing ovens (i.e.,

⁶⁹ The Home Depot sales data do not contain model numbers, and thus, the data do not identify which sales are associated with the Challenged Products. It appears that Mr. Weir did not use the Home Depot sales data in his claimed price premium damages calculation. (Weir Declaration, p. 40.)

⁷⁰ I was provided two Lowe's datasets: LOWES000009.xlsx and LOWES000010.xlsx. However, the Lowe's data contained in LOWES000009.xlsx do not indicate the date in which the sales were made. Mr. Weir used the sales data contained in LOWES000010.xlsx (not LOWES000009.xlsx) to calculate claimed total dollar sales of the Challenged Products (which he used to calculate claimed price premium damages). (Weir Declaration, p. 40.)

⁷¹ I was provided two Sears datasets: SEARS000001.xlsx and SEARS000002.xlsx. It appears that the first dataset (SEARS000001.xlsx) contains the same sales information (i.e., unit sales and dollar sales) as the second dataset (SEARS000002.xlsx). However, information on the model numbers (i.e., vendor model numbers) and product descriptions (i.e., vendor descriptions) are missing for every year in SEARS000001.xlsx. Model numbers and product descriptions are missing only for 2013 in SEARS000002.xlsx. Observations for all years (including 2013) have a "SEARS ITEM NUMBER," which can be used to identify the model numbers and product descriptions missing in year 2013. Mr. Weir used the sales data contained in SEARS000002.xlsx (not SEARS000001.xlsx) to calculate claimed total dollar sales of the Challenged Products (which he used to calculate claimed price premium damages). (Weir Declaration, p. 40.)

⁷² Weir Declaration, p. 33. Also produced in this matter are Whirlpool wholesale data and data relating to Whirlpool sales to Toll Brothers (which I understand is a home construction company).

⁷³ The H.H. Gregg sales data include one transaction in July 2017. However, the quantity of this transaction is -1, likely indicating this was a returned item.

⁷⁴ Lowe's sales data include the first two weeks ending in December 2017 (i.e., the weeks ending December 1, 2017 and December 8, 2017).

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

ovens manufactured by Samsung, Frigidaire, LG, and GE).⁷⁵ Mr. Weir used the H.H. Gregg sales data to conduct his regression analysis.⁷⁶

- A single observation (i.e., sale) in the H.H. Gregg sales data includes the following information: (a) store that made the sale; (b) location of store (by state);⁷⁷ (c) units sold;⁷⁸ (d) selling price (i.e., what the unit(s) actually sold for); (e) total dollar amount earned; (f) regular price (i.e., non-promotional price); (g) promotional price; and (h) discount amount (i.e., additional discount on either the regular price or promotional price).
 - The H.H. Gregg sales data cover only the following 20 states (plus online sales): Alabama, Delaware, Florida, Georgia, Illinois, Indiana, Kentucky, Louisiana, Maryland, Mississippi, Missouri, New Jersey, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia, West Virginia, and Wisconsin.
- b. Product-Level Attribute Data. According to his declaration, Mr. Weir collected technical specification data on product attributes from oven manufacturer websites and CNET.⁷⁹
- i. Mr. Weir used the information obtained on product attributes to supplement the H.H. Gregg sales data. For example, Mr. Weir identified each oven in the data to have one of the following cleaning mechanisms: (i) Manual (i.e., no cleaning mechanism), (ii) AquaLift, (iii) Self-Clean, (iv) Steam-Clean, (v) EasyClean, (vi) Self-Clean and Steam-Clean, or (vii) Self-Clean and EasyClean.⁸⁰
 - ii. Summarized in **Table 3** are the categories of oven attributes identified by Mr. Weir for different oven models contained in the H.H. Gregg sales data.

⁷⁵ The sales data provided by the other retailers appear to be primarily comprised of Challenged Product sales.

⁷⁶ Weir Declaration, Exhibit 4.

⁷⁷ The H.H. Gregg sales data also include online sales, which do not have a store or geographic designation.

⁷⁸ While the H.H. Gregg sales data are transaction-level data, some transactions are for more than one unit.

⁷⁹ Weir Declaration, pp. 33 – 34.

⁸⁰ Weir Declaration, p. 35.

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

Table 3
Summary Of Oven Attributes As Identified By Mr. Weir

Attribute	Possible Variations
Cleaning Mechanism	Manual; Pyrolytic Self-Clean; Steam Clean; AquaLift; EasyClean
Brand	Whirlpool; Maytag; Jenn-Air; KitchenAid; Frigidaire; GE; LG; Samsung
Fuel Type	Electric; Gas; Dual Fuel
Convection Functions	No Convection Functions or Convection Functions
Single/Double Oven	Single Oven or Double Oven
Oven Capacity	4.2 – 7.3 Cubic Feet
Number Of Oven Racks	2 – 4 Racks
Number Of Burners Elements	4 – 5 Burners
Finish Type	Black; Black Stainless Steel; Slate; Stainless Steel; White
Control Panel Location	Back or Front

36. Using the above two data sources, Mr. Weir prepared a dataset of 205 distinct oven models with unit sales, prices, and attributes for each oven.⁸¹ (See **Exhibit 6** for a summary of the H.H. Gregg sales data and **Exhibit 7** for the attributes identified by Mr. Weir for these 205 models.)

2. Description Of Hedonic Regression And Results

37. Using the data discussed above, Mr. Weir performed a hedonic regression with the price of the oven as the dependent variable and the various attributes identified by Mr. Weir as the independent (i.e., explanatory) variables.⁸² Mr. Weir utilized a semi-logged approach, where the logged price of the oven was the dependent variable.⁸³ The independent variables used in his regression analysis can be categorized as follows.

- a. **Dummy Variables.** In his hedonic regression, Mr. Weir controlled for many of the aforementioned oven attributes using dummy variables. A dummy variable is a variable coded as either one or zero to indicate, in this case, whether the oven is or is not identified as

⁸¹ Weir Declaration, p. 34.

⁸² Weir Declaration, pp. 37 – 38 and Exhibit 4.

⁸³ Weir Declaration, p. 37.

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

having the specific attribute level.⁸⁴ The attribute dummy variables included in Mr. Weir's hedonic regression are presented in **Table 4** by attribute category. The table also includes the comparison group for each attribute, which reflects the base attribute level from which comparisons are made within a given category.⁸⁵

Table 4
Summary Of Attribute Dummy Variables Included In Mr. Weir's Regression Analysis⁸⁶

Attribute	Included Dummy Variables	Comparison Group
Cleaning Mechanism	Pyrolytic Self-Clean; Steam Clean; AquaLift; EasyClean; Pyrolytic Self-Clean / EasyClean; Pyrolytic Self-Clean / Steam Clean	Manual
Brand	Whirlpool; Maytag; Jenn-Air; KitchenAid; GE; LG; Samsung	Frigidaire
Fuel Type	Gas; Dual Fuel	Electric
Convection Functions	Convection Functions	No Convection Functions
Single/Double Oven	Double Oven	Single Oven
Finish Type	Black Stainless Steel; Slate; Stainless Steel; White	Black
Control Panel Location	Front Controls	Back Controls

- b. Discrete Variables. Mr. Weir included explanatory variables for oven capacity, number of oven racks, and number of burner elements. For example, an oven will have two, three, or four oven racks.⁸⁷
- c. Time And State Variables. Mr. Weir included time period dummy variables (i.e., a dummy variable for each quarter-year combination) and state dummy variables (i.e., a dummy variable for each state and online sales).⁸⁸

38. Mr. Weir's regression results (i.e., the coefficients) can be interpreted as the percent change in oven prices due to a change in an identified oven attribute (holding all other factors constant).

Coefficients on dummy variables are interpreted as the percent difference in price for ovens with

⁸⁴ For example, Mr. Weir included a dummy variable "Double Oven," which equals one if the oven is a double oven or zero if the oven is a single oven.

⁸⁵ For example, Mr. Weir identified three fuel type levels for the ovens included in his regression analysis: electric, gas, and dual fuel. To control for fuel type, he included a dummy variable for gas and dual fuel. If an oven is electric, both the gas and dual fuel dummy variables are zero. Moreover, the interpretation of the coefficient on gas, for example, would be how much more (or less) the price of a gas oven is compared to the price of an electric oven (holding all other attributes the same).

⁸⁶ Weir Declaration, Exhibit 4.

⁸⁷ Weir Declaration, Exhibit 4.

⁸⁸ Weir Declaration, Exhibit 4. Based upon my review of Mr. Weir's code used to conduct his regression analysis, the comparison groups or omitted dummy variables for time and state were 2012:Q1 and online sales, respectively.

Declaration of Keith R. Ugone, Ph.D.
April 9, 2018

a specific attribute level compared to ovens in the comparison group (as discussed above). For example, the coefficient on the gas (fuel type) dummy variable is interpreted as follows: the price of a gas oven is (on average) 11.4% greater than the price of an electric oven (holding all other factors the same).⁸⁹ Alternatively, coefficients on discrete variables are interpreted as the percent change in price due to an incremental increase in the variable. For example, the coefficient for number of oven racks is interpreted as follows: adding one more oven rack (holding all other factors the same) increases the price of an oven (on average) by 24.4%.⁹⁰

39. Based upon his regression analysis, Mr. Weir opined to a claimed price premium of 10.83% for adding AquaLift to an oven relative to a manual clean oven with no cleaning mechanism (the comparison group for the cleaning mechanism attribute).⁹¹

B. Conjoint Analysis

40. Mr. Weir conducted a Choice-Based-Conjoint survey to obtain information on consumer preferences regarding ovens and AquaLift.⁹²
- a. Exploratory Research. Mr. Weir conducted eight 30-minute long, cognitive interviews with purchasers of “one or more Whirlpool brand oven during the proposed class period.”⁹³ Mr. Weir conducted these interviews to collect “background information on what product features drive purchasing behavior for purchasers of ovens.”⁹⁴
 - b. Conjoint Survey Design. After the exploratory research, Mr. Weir designed a survey which included screening questions to narrow the survey participants to the relevant population

⁸⁹ The actual reported coefficient on the gas dummy variable is 0.107925. Because Mr. Weir used a semi-logged approach, this coefficient represents the change in logged price. This coefficient (and all other coefficients) must be raised to the mathematical constant e to undo the log transformation of price. The interpretation of the new value (i.e., e raised to the power equal to the coefficient) is a percentage change in price (not a change in logged price). Thus, the percentage change in price for having a gas oven (compared to an electric oven) is 11.4% (or $e^{0.107925} = 1.113964$). (Weir Declaration, Exhibit 4.)

⁹⁰ The actual reported coefficient for number of oven racks is 0.217942. As discussed earlier, the percentage change in price is determined by raising the mathematical constant e to the power equal to the coefficient. Thus, the percentage change in price for adding an additional oven rack is 24.4% (or $e^{0.217942} = 1.243516$). (Weir Declaration, Exhibit 4.)

⁹¹ Weir Declaration, pp. 38 – 39.

⁹² Weir Declaration, p. 9.

⁹³ Weir Declaration, p. 7.

⁹⁴ Weir Declaration, p. 7. No notes were provided associated with these interviews.